



Gyrodata Incorporated
10504 WCR 72
Midland, TX 79707

Main: 432-561-8458
Fax: 432-563-7982

NM OIL CONSERVATION
ARTESIA DISTRICT

SEP 22 2017

RECEIVED

I, Kevin Willard, certify that; I am employed by Gyrodata Inc.; that I am authorized and qualified to review the Gyroscopic Multishot survey from a depth of 0 feet to a depth of 8192 feet conducted on the day(s) of 05/25/17 through 05/25/17; that this survey was conducted at the request OXY for the Cedar Canon 23 Federal Com Well 6H API No. 30-015-44095 in Eddy County, New Mexico; that the data is true, correct, complete, and within the limitations of the tool as set forth by Gyrodata Inc.; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by Gyrodata Inc.



Kevin Willard
Operations Coordinator

Schlumberger Drilling and Measurements
Drilling Group
Geo Market Area: South West Texas Basin
7220 W I-H 20
Midland, Texas 79706
Phone : (432) 742-5400 (Main)
Fax : (432) 742-5606 (Shared)

Schlumberger

June 23, 2017

OXY INC USA
5 Greenway Plaza, Suite 110
Houston, TX 77046

Re:

22, 24S, 29E, Eddy NM
N 32.20205 W -103.96755

CLIENT: OXY INC USA
WELL: Cedar Canyon 23 Federal Com 6H
FIELD: East Pierce Crossing (Bone Springs)

RIG: HP 617
COUNTY: Eddy
API NO: 30-015-44095
JOB NO: 17MLD1258

Enclosed, please find the original copy of the survey performed on the referenced well by Drilling & Measurements, a division of Schlumberger Technology Corporation (P-5 No. 754900).
Other information required by your office is as follows.

<u>Name & Title of Surveyor</u>	<u>Drainhole Number</u>	<u>Surveyed Depths</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
Chris Heimann FE	Cedar Canyon 23 Federal Com 6H Original Hole	8458.00 Ft to 17310.00 Ft	June 19, 2017 to June 22, 2017	SlimPulse

If any other information is required, please contact the undersigned at the above letterhead and phone number.
Sincerely,

Brian Nogues
Field Service Manager

Schlumberger Drilling and Measurements
Drilling Group
Geo Market Area: South West Texas Basin
7220 W I-H 20
Midland, Texas 79706
Phone : (432) 742-5400 (Main)
Fax : (432) 742-5606 (Shared)

Schlumberger

Well Reference:
22, 24S, 29E, Eddy NM
N 32.20205 W -103.96755

I, Chris Heimann certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of June 19, 2017 through June 22, 2017, conduct or supervise the taking of the SlimPulse surveys from a depth of 8458.00 feet to a depth of 17310.00 feet referenced to driller's depth; that the data is true, correct, complete and within the limitations of the tool as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I am authorized and qualified to make this report; that this survey was conducted at the request of OXY INC USA for the Cedar Canyon 23 Federal Com 6H Well (Original Hole) API No. 30-015-44095 in New Mexico; and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation.

By
Chris Heimann
FE



Subscribed and Sworn to before me this _____ day of _____ (month) _____ (yr)

My Commission expires:

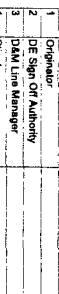
Notary Public

_____- (signature)

(County State)

Oxy Cedar Canyon 23 Federal Com 6H

Mineral name: Oxy Cedar Canyon 23
 Slope: TWD Ref: RKB=26.512975, 20 above MSL
 Plan: Federal Com 6H
 Oxy Cedar Canyon 23 Federal Com 6H REVS LBN 17May 17



Schlumberger Survey Report

Friday June 23 2017 10:11 Report by MaxWell

-----General Information-----

Client : OXY USA INC. Well name : Cedar Canyon 23 Federal Com 6H
Field Eastern Zo US Feet

-----Survey Calculation Methods-----

Method for positions : Minimum Curvature Method

-----Job Location & Elevation-----

Latitude : 32.2021 degrees Longitude : -103.9676degrees
Permanent Datum : MSL Log Measured From : DF
Elevation of LMF from MSL : 2975.20 ft Elevation of TIP from MSL: 2975.20 ft
Depth Source :

-----Vertical Section Origin-----

Latitude (+N/S-) : 0.00 ft Departure (+E/W-) : 0.00 ft
Target Azimuth : 91.2300 degrees

-----MWD Survey Reference Criteria-----

-----Run1-----

Geomag Model:	: HDGM 2016	Calculation Date:	: 16-Jun-2017
Location G (Override):	998.47 mgn	Tolerance G	: 2.50 mgn
Location B (Override):	48121.37 nT	Tolerance B	: 300.00 nT
Magnetic Dip (Override):	60.04 degrees	Tolerance Dip	: 0.45 degrees

-----Run2-----

Geomag Model:	: HDGM 2016	Calculation Date:	: 16-Jun-2017
Location G (Override):	998.47 mgn	Tolerance G	: 2.50 mgn
Location B (Override):	48121.37 nT	Tolerance B	: 300.00 nT
Magnetic Dip (Override):	60.04 degrees	Tolerance Dip	: 0.45 degrees

-----MWD Survey Azimuth Correction-----

-----Run1-----

Magnetic dec (+E/W-) : 7.1230 degrees(Override)
Grid convergence (+E/W-) : 0.1949 degrees

GTotal az corr (+E/W-) : 6.9281 degrees

-----Run2-----

Magnetic dec (+E/W-) : 7.1230 degrees(Override)

Grid convergence (+E/W-) : 0.1949 degrees

GTotal az corr (+E/W-) : 6.9281 degrees

-----Survey Quality Index Description-----

0 : Long Survey passed all criteria 2 : Long Survey failed mag criteria

9 : Manual 28 : Tie-In Point

-----Survey Correction Index Description-----

0 : No Correction

-----Survey Description Index Description-----

0 : Not Flagged Survey

===== Survey List =====

MD (ft)	Incl (deg)	Azim (deg)	TVD (ft) /100ft)	V Sec (ft)	N/-S (ft)	E/-W (ft)	DLS (deg)	Run
0	0	0	0	0	0	0	0 -	
26.5	0	0	26.5	0	0	0	0	1
75.3	0.48	94.28	75.3	0.2	-0.02	0.2	0.98	1
164.1	0.89	82.58	164.09	1.26	0.05	1.26	0.49	1
254.2	1.02	84.78	254.18	2.75	0.21	2.75	0.15	1
343.9	1.44	55.95	343.86	4.46	0.91	4.48	0.82	1
432.6	1.56	59.76	432.53	6.4	2.15	6.45	0.18	1
521.7	1.5	59.31	521.6	8.42	3.35	8.5	0.07	1
612.5	1.03	59.53	612.38	10.13	4.37	10.22	0.52	1
704	0.05	348.59	703.87	10.82	4.83	10.92	1.11	1
796.2	0.06	266.37	796.07	10.76	4.86	10.87	0.08	1
888.2	0.06	265.11	888.07	10.66	4.86	10.77	0	1
978.7	0.06	273.33	978.57	10.57	4.86	10.68	0.01	1
1070.2	0.05	271.23	1070.07	10.48	4.86	10.59	0.01	1
1161.1	0.05	270.79	1160.97	10.4	4.86	10.51	0	1
1255.5	0.05	264.01	1255.37	10.32	4.86	10.43	0.01	1
1349.6	0.05	253.47	1349.47	10.24	4.84	10.35	0.01	1
1444	0.05	247.06	1443.87	10.16	4.81	10.27	0.01	1
1538	0.04	257.07	1537.87	10.1	4.79	10.2	0.01	1
1632.2	0.05	251.21	1632.07	10.02	4.77	10.13	0.01	1

1726.5	0.05	252.04	1726.37	9.95	4.74	10.05	0	1
1820.7	0.05	253.92	1820.57	9.87	4.72	9.97	0	1
1914.8	0.04	267.01	1914.67	9.8	4.71	9.9	0.02	1
2009.1	0.04	255.46	2008.97	9.73	4.7	9.84	0.01	1
2103.4	0.04	257.64	2103.27	9.67	4.68	9.77	0	1
2197.7	0.04	253.01	2197.57	9.61	4.66	9.71	0	1
2292.2	0.05	238.29	2292.07	9.54	4.63	9.64	0.02	1
2386.8	0.05	234.23	2386.67	9.47	4.59	9.57	0	1
2481.4	0.05	225.94	2481.27	9.41	4.53	9.51	0.01	1
2575.8	0.06	224.61	2575.67	9.35	4.47	9.45	0.01	1
2670.3	0.07	233.04	2670.17	9.27	4.4	9.36	0.01	1
2764.7	0.07	227.03	2764.57	9.18	4.33	9.28	0.01	1
2859.1	0.08	219.95	2858.97	9.1	4.24	9.19	0.01	1
2953.5	0.08	215.06	2953.37	9.02	4.13	9.11	0.01	1
3047.8	0.15	212.44	3047.67	8.92	3.97	9.01	0.07	1
3142.3	0.1	215.69	3142.17	8.81	3.8	8.89	0.05	1
3237	0.07	219.79	3236.87	8.73	3.69	8.81	0.03	1
3331.5	0.06	218.38	3331.37	8.66	3.61	8.74	0.01	1
3425.7	0.06	220.08	3425.57	8.6	3.53	8.68	0	1
3520	0.06	217.95	3519.87	8.54	3.46	8.62	0	1
3614.2	0.07	219.75	3614.07	8.47	3.37	8.55	0.01	1
3708.5	0.06	214.95	3708.37	8.41	3.29	8.48	0.01	1
3802.8	0.06	215.71	3802.67	8.36	3.21	8.43	0	1
3897.1	0.06	220.99	3896.97	8.3	3.13	8.36	0.01	1
3991.3	0.05	219.27	3991.17	8.24	3.06	8.31	0.01	1
4085.4	0.05	224.44	4085.27	8.19	3	8.25	0	1
4179.7	0.06	216.51	4179.57	8.13	2.93	8.19	0.01	1
4273.7	0.06	217.73	4273.57	8.07	2.85	8.13	0	1
4367.9	0.03	328.98	4367.77	8.03	2.83	8.09	0.08	1
4462.2	0.03	339.58	4462.07	8.01	2.88	8.07	0.01	1
4556.7	0.03	336.76	4556.57	7.99	2.92	8.05	0	1
4651	0.03	343.47	4650.87	7.97	2.97	8.03	0	1
4745.2	0.03	344.28	4745.07	7.95	3.02	8.02	0	1
4839.5	0.03	338.96	4839.37	7.94	3.06	8.01	0	1
4933.8	0.04	344.11	4933.67	7.92	3.12	7.99	0.01	1
5028	0.03	1.73	5027.87	7.91	3.18	7.98	0.02	1
5122.4	0.04	345.06	5122.27	7.9	3.23	7.97	0.02	1
5216.8	0.04	289.99	5216.67	7.86	3.28	7.93	0.04	1
5311.1	0.04	295.99	5310.97	7.8	3.3	7.87	0	1
5405.4	0.05	287.04	5405.27	7.73	3.33	7.8	0.01	1
5499.7	0.04	292.27	5499.57	7.66	3.35	7.73	0.01	1
5593.9	0.05	284.66	5593.77	7.59	3.37	7.66	0.01	1
5688.2	0.02	111.16	5688.07	7.56	3.38	7.64	0.07	1
5782.5	0.02	111.15	5782.37	7.6	3.37	7.67	0	1
5877.1	0.03	125.4	5876.97	7.63	3.35	7.7	0.01	1
5971.3	0.03	114.05	5971.17	7.67	3.32	7.75	0.01	1
6065.6	0.03	102.21	6065.47	7.72	3.31	7.79	0.01	1

6160	0.03	126.37	6159.87	7.77	3.29	7.84	0.01	1
6254.2	0.04	120.95	6254.07	7.81	3.26	7.89	0.01	1
6348.6	0.03	109.62	6348.47	7.87	3.23	7.94	0.01	1
6443	0.04	118.35	6442.87	7.92	3.21	7.99	0.01	1
6537.4	0.04	97.03	6537.27	7.98	3.19	8.05	0.02	1
6632	0.05	56.29	6631.87	8.05	3.21	8.12	0.03	1
6726.4	0.43	190.17	6726.27	8.03	2.88	8.09	0.49	1
6820.8	4.45	193.87	6820.56	7.17	-1.03	7.15	4.26	1
6915.1	8.2	196.35	6914.27	4.61	-11.03	4.38	3.99	1
7009.2	7.97	193.25	7007.44	1.51	-23.82	0.99	0.52	1
7103.4	4.48	156.07	7101.1	1.71	-33.55	0.99	5.48	1
7197.8	4.3	129.45	7195.23	6.06	-39.17	5.22	2.15	1
7292	5.87	120.35	7289.06	13.04	-43.85	12.1	1.87	1
7386.3	7.45	114.91	7382.72	22.85	-48.86	21.81	1.8	1
7480.7	8	106.48	7476.27	34.8	-53.3	33.66	1.33	1
7575.2	9.17	95.75	7569.72	48.65	-55.92	47.46	2.09	1
7669.4	11.35	95.6	7662.4	65.38	-57.58	64.15	2.31	1
7763.7	13.44	95.46	7754.5	85.56	-59.53	84.3	2.22	1
7858.1	16	94.65	7845.79	109.49	-61.62	108.19	2.72	1
7952.5	15.67	92.72	7936.61	135.22	-63.28	133.89	0.66	1
8046.9	13.96	88.38	8027.87	159.34	-63.57	158.01	2.16	1
8141.2	13.81	85.86	8119.42	181.91	-62.43	180.61	0.66	1
8192.8	14.56	83.4	8169.45	194.47	-61.24	193.19	1.86	1
8259	13.43	77.68	8233.68	210.18	-58.65	208.97	2.7	1
8458	14.95	109.79	8426.9	257.05	-62.41	255.77	3.98	1
8552	23.83	104.81	8515.49	287.06	-71.39	285.6	9.6	1
8647	29.12	96.07	8600.53	328.79	-78.74	327.18	6.9	1
8742	41.21	95.9	8678.05	383.22	-84.43	381.49	12.73	1
8836	51.37	94.76	8742.92	450.9	-90.67	449.06	10.84	1
8931	64.74	93.25	8793.08	531.24	-96.22	529.29	14.14	1
9025	77.17	95.89	8823.69	619.75	-103.36	617.68	13.48	1
9120	86.46	98.47	8837.21	713.17	-115.12	710.86	10.14	1
9228	86.7	97.85	8843.66	820.18	-130.42	817.57	0.61	2
9322	87.8	96.85	8848.17	913.54	-142.43	910.69	1.59	2
9417	89.38	93.04	8850.51	1008.29	-150.62	1005.29	4.33	2
9511	89.69	92.64	8851.27	1102.25	-155.28	1099.17	0.54	2
9606	89.45	93.16	8851.98	1197.21	-160.08	1194.05	0.6	2
9700	89.72	96.49	8852.66	1291.01	-167.98	1287.7	3.56	2
9795	89.62	96.2	8853.2	1385.63	-178.48	1382.11	0.32	2
9889	89.66	96.72	8853.79	1479.23	-189.06	1475.51	0.55	2
9984	89.76	96.43	8854.28	1573.82	-199.94	1569.89	0.33	2
10079	89.42	96.22	8854.96	1668.44	-210.4	1664.31	0.42	2
10173	89.76	95.62	8855.64	1762.12	-220.1	1757.8	0.73	2
10285	89.69	89.39	8856.18	1874.04	-225	1869.64	5.56	2
10362	89.83	88.56	8856.5	1950.98	-223.62	1946.62	1.1	2
10456	89.97	88.79	8856.67	2044.88	-221.44	2040.6	0.28	2
10551	89.17	88.06	8857.39	2139.76	-218.83	2135.56	1.13	2

10645	89.62	88.57	8858.37	2233.64	-216.07	2229.51	0.72	2
10740	87.21	85.47	8861	2328.33	-211.14	2324.33	4.13	2
10834	89.04	87.3	8864.07	2421.93	-205.22	2418.08	2.74	2
10929	89.62	88.1	8865.19	2516.75	-201.41	2513	1.04	2
11024	89.72	91.53	8865.73	2611.7	-201.11	2607.98	3.61	2
11119	89.17	93.06	8866.64	2706.68	-204.91	2702.9	1.71	2
11225	88.62	93.22	8868.68	2812.6	-210.72	2808.72	0.54	2
11308	86.35	93.82	8872.31	2895.45	-215.81	2891.48	2.83	2
11403	87.66	95.13	8877.27	2990.16	-223.21	2986.06	1.94	2
11497	87.56	92.77	8881.19	3083.97	-229.68	3079.75	2.5	2
11592	87.73	92.01	8885.1	3178.87	-233.64	3174.58	0.82	2
11687	87.52	91.55	8889.04	3273.78	-236.59	3269.45	0.53	2
11781	88.87	93.5	8892	3367.7	-240.73	3363.31	2.51	2
11876	89.93	92.56	8892.99	3462.65	-245.75	3458.17	1.5	2
11971	88.73	90.38	8894.11	3557.63	-248.18	3553.12	2.62	2
12065	88.49	90.11	8896.39	3651.59	-248.58	3647.1	0.38	2
12174	86.9	87.54	8900.78	3760.39	-246.34	3755.97	2.77	2
12259	88.35	87.34	8904.3	3845.13	-242.55	3840.81	1.72	2
12349	89.21	85.33	8906.22	3934.78	-236.8	3930.6	2.43	2
12444	89.07	85.33	8907.65	4029.27	-229.07	4025.28	0.14	2
12539	89.31	85.5	8908.98	4123.77	-221.47	4119.96	0.31	2
12633	90.17	87.51	8909.41	4217.44	-215.75	4213.78	2.33	2
12728	89.21	85.3	8909.92	4312.1	-209.79	4308.58	2.54	2
12832	89	88.74	8911.54	4415.79	-204.38	4412.42	3.32	2
12917	87.73	87.6	8913.97	4500.63	-201.67	4497.33	2.01	2
13012	88.04	88.7	8917.48	4595.42	-198.61	4592.22	1.2	2
13106	89.17	89.38	8919.76	4689.33	-197.03	4686.18	1.41	2
13201	89.14	89.42	8921.16	4784.27	-196.04	4781.16	0.05	2
13296	88.04	88.67	8923.5	4879.17	-194.45	4876.12	1.4	2
13390	89.48	88.58	8925.53	4973.04	-192.19	4970.06	1.54	2
13485	89.52	88.43	8926.35	5067.93	-189.7	5065.03	0.16	2
13579	90.14	88.96	8926.64	5161.84	-187.56	5159	0.87	2
13674	89.62	88.32	8926.84	5256.74	-185.31	5253.98	0.87	2
13777	89.52	88.31	8927.61	5359.61	-182.29	5356.93	0.1	2
13863	89.69	88.33	8928.2	5445.49	-179.77	5442.89	0.2	2
13958	89.62	88.36	8928.77	5540.37	-177.02	5537.85	0.08	2
14052	88.97	92.03	8929.93	5634.33	-177.34	5631.82	3.97	2
14147	87.35	91.51	8932.98	5729.28	-180.27	5726.73	1.79	2
14242	89.24	92.48	8935.81	5824.22	-183.57	5821.62	2.24	2
14336	88.83	91.94	8937.39	5918.19	-187.19	5915.54	0.72	2
14431	88.49	92.3	8939.61	6013.15	-190.71	6010.45	0.52	2
14525	89.97	92.82	8940.88	6107.12	-194.91	6104.34	1.67	2
14620	89.83	92.16	8941.05	6202.09	-199.04	6199.25	0.71	2
14715	89.62	92.63	8941.51	6297.07	-203.01	6294.16	0.54	2
14809	89.55	92.16	8942.19	6391.05	-206.95	6388.08	0.5	2
14904	89.55	92.06	8942.93	6486.04	-210.45	6483.01	0.11	2
14998	90.03	92.26	8943.27	6580.02	-213.98	6576.94	0.55	2

15093	89.35	91.15	8943.78	6675.02	-216.81	6671.9	1.37	2
15187	89.55	92.07	8944.68	6769.01	-219.44	6765.86	1	2
15282	89.55	88.34	8945.42	6863.97	-219.78	6860.84	3.92	2
15377	89.52	88.19	8946.19	6958.84	-216.9	6955.79	0.16	2
15471	88.69	88.22	8947.66	7052.7	-213.95	7049.73	0.88	2
15566	88.97	88.11	8949.6	7147.54	-210.91	7144.66	0.31	2
15660	88.97	88.22	8951.29	7241.39	-207.9	7238.6	0.11	2
15755	88.38	88.17	8953.49	7336.24	-204.9	7333.53	0.62	2
15849	89.41	87.92	8955.29	7430.07	-201.7	7427.45	1.13	2
15944	87.66	87.35	8957.72	7524.85	-197.79	7522.34	1.94	2
16039	88.11	88.05	8961.22	7619.6	-193.98	7617.2	0.87	2
16133	89.11	88.55	8963.51	7713.45	-191.2	7711.12	1.19	2
16228	89.48	87.9	8964.68	7808.31	-188.25	7806.07	0.8	2
16322	90	87.99	8965.1	7902.16	-184.87	7900.01	0.56	2
16417	89.97	88.51	8965.13	7997.03	-181.97	7994.96	0.55	2
16512	89.72	87.81	8965.39	8091.89	-178.92	8089.91	0.77	2
16607	89.42	88.93	8966.1	8186.77	-176.23	8184.87	1.22	2
16701	89.62	88.09	8966.89	8280.66	-173.78	8278.84	0.93	2
16796	90.1	87.97	8967.12	8375.51	-170.52	8373.78	0.52	2
16890	89.62	88.21	8967.34	8469.37	-167.38	8467.73	0.57	2
16985	88.31	88.31	8969.06	8564.22	-164.5	8562.67	1.38	2
17080	88.87	88.02	8971.39	8659.06	-161.46	8657.59	0.66	2
17174	89.62	87.94	8972.64	8752.9	-158.15	8751.52	0.81	2
17269	89.55	88	8973.32	8847.74	-154.79	8846.46	0.09	2
17310	89.62	88.19	8973.62	8888.68	-153.43	8887.43	0.51	2

OXY USA Inc.
Cedar Canyon 23 Federal Com 6H
API No. 30-015-44095

14-3/4" hole @ 418'
10-3/4" csg @ 418'
w/ 350sx-TOC-Surf Circ.

9-7/8" hole @ 8358'
7-5/8" csg @ 8348'
w/ 1870sx-TOC-150' Calc.

6-3/4" hole @ 17351'
5-1/2" x 4-1/2" csg @ 17341'
w/ 875sx-TOC-8188'

Perfs @ 9946-17187'

TD- 17351'M 8974'V